

ABSTRACT OF THE DISCLOSURE

An optical encoder includes a sensor head, an encoder scale, and an optical wavefront dividing element. The sensor head includes a substrate, a light source, a first optical
5 detector, and a second optical detector. The light source, the first optical detector, and the second optical detector are disposed on the substrate. The scale includes a first track and a second track. The optical wavefront dividing element is disposed between the sensor head and the scale. A light beam
10 emitted by the light source is divided into a first beam and a second beam by the wavefront dividing element. The first beam is incident on the first track and the second beam is incident on the second track. Light from the first beam diffracted by the first track is incident on the first optical detector. Light
15 from the second beam diffracted by the second track is incident on the second optical detector.

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